LISTING OF CLAIMS

The following listing of claims replaces all prior versions or listings of claims pending in the application:

1. (original) An optical switch comprising:
   a) an input fiber collimator for receiving a light beam;
   b) a first mirror optically connected to the input collimator, for receiving the light beam from the input collimator;
   c) a first galvanometer coupled to the first mirror, for rotating the first mirror around a first axis so as to position the first mirror alternatively to any one of a plurality of first mirror positions;
   d) a second mirror optically connected to the first mirror, for receiving the light beam from the first mirror;
   e) a second galvanometer coupled to the second mirror, for rotating the second mirror about a second axis perpendicular to the first axis, so as to position the second mirror alternatively to any one of a plurality of second mirror positions; and
   f) a two-dimensional array of output fiber collimators each optically coupled to the second mirror, each of the output collimators being aligned with a ray corresponding to one of the first mirror positions and one of the second mirror positions, whereby the light beam is directed to any one of the output collimators by rotating the first mirror and the second mirror.

2. (original) The switch of claim 1 wherein the array of output collimators is arranged over an output surface having a substantially spherical curvature of a radius valued between R and R+d, wherein R is a distance between the second mirror and the output surface, and d is a distance between the first axis and the second axis.

3. (original) The switch of claim 1 wherein the array of output collimators is arranged over an output surface defined substantially by an exact constant optical path condition accounting for a dependence of the optical path between the input collimator and each of the output collimators on an orientation of the first mirror and an orientation of the second mirror.

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4. (original) The switch of claim 3 wherein the exact constant optical path condition is

$$z = \sqrt{\left[\left(\sqrt{(R+d)^2 - x^2} - d\right)^2 - y^2\right]}$$

wherein R is a real image radius, and d is a virtual image radius substantially equal to a distance between the first axis and the second axis.

5. (original) An optical switch comprising:
   a) an optical input for receiving a light beam;
   b) a galvanometer-driven, rotatable-mirror x-y scanner optically coupled to the optical input, for directing the light beam to one of a plurality of directions; and
   c) an array of output fiber collimators arranged over a concave output surface, each of the output collimators being aligned with one of the directions so as to receive the light beam when directed by the x-y scanner.

6. (original) The optical switch of claim 5 wherein the output surface has a substantially spherical curvature.

7. (original) The optical switch of claim 5 wherein the output surface is defined substantially by a constant optical path condition accounting for a dependence of an optical path corresponding to each direction on an orientation of the x-y scanner.

8. (currently amended) An optical switch comprising:
   a) an optical input for receiving a light beam;
   b) a galvanometer-driven, rotatable-mirror x-y scanner optically coupled to the optical input, for ~~selectively~~ directing the light beam to one of a plurality of output paths; and
   c) an array of optical outputs capable of optical communication with the x-y scanner and aligned over an output surface, each of the optical outputs being aligned with one of the output paths so as to receive the light beam when directed by the x-y scanner.

9. (currently amended) An optical system comprising:
   a) an optical source for generating a light beam;

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b) an optical switch in optical communication with the optical source, for receiving and directing the light beam, the optical switch comprising:

an optical input optically connected to the optical source, for receiving the light beam,

a galvanometer-driven, rotatable-mirror x-y scanner optically coupled to the optical input, for selectively directing the light beam to one of a plurality of output paths, and

an array of optical outputs capable of optical communication with the x-y scanner, each of the optical outputs being aligned to one of the output paths so as to receive the light beam when directed by the x-y scanner; and

c) an array of optical receivers each optically connected to a corresponding optical output, for receiving the light beam when directed by the x-y scanner to the corresponding optical output.

10. (original) An optical switch comprising:

a) a first rotatable-mirror x-y scanner for selectively directing a selected one of a plurality of received light beams to a fixed intermediate path; and

b) an array of optical inputs capable of optical communication with the first x-y scanner and aligned over a concave input surface, for receiving the plurality of light beams and directing the plurality of light beams to the first x-y scanner;

c) a second rotatable-mirror x-y scanner optically connected to the first x-y scanner over the fixed intermediate path, for receiving the selected one of the plurality of light beams and selectively directing the selected one of the plurality of light beams to one of a plurality of output paths; and

d) an array of optical outputs capable of optical communication with the second x-y scanner and aligned over a concave output surface, each of the optical outputs corresponding to one of the output paths so as to receive the selected one of the plurality of light beams when directed by the second x-y scanner.

11. (currently amended) An optical switch comprising:

a) an optical output for directing a light beam to an optical receiver;

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b) a galvanometer-driven, rotatable-mirror x-y scanner optically coupled to the optical output, for selectively directing one of a plurality of received light beams to the optical output; and

c) an array of optical inputs capable of optical communication with the x-y scanner and aligned over a concave input surface, each of the optical inputs directing one of the plurality of light beams to the x-y scanner.

12. (original) A method of switching a light beam between at least one input fiber and at least one of an array of output fibers, comprising the steps of :

a) collimating the light beam and directing the light beam to a first mirror;

b) controlling a first galvanometer to rotate the first mirror around a first axis so as to position the first mirror alternatively to any one of a plurality of first mirror positions;

c) receiving the light beam at the first mirror and directing the light beam to a second mirror;

d) controlling a second galvanometer to rotate the second mirror about a second axis perpendicular to the first axis, so as to position the second mirror alternatively to any one of a plurality of second mirror positions;

e) receiving the light beam at the second mirror and directing the light beam to a selected one of an array of output fiber collimators, each of the output collimators being aligned with a ray corresponding to one of the first mirror positions and one of the second mirror positions; and

f) receiving the light beam at the selected one of the array of output fiber collimators. and collimating and directing the light beam to an output optical fiber coupled to the selected one of the array of output fiber collimators.

13. (currently amended) An optical switching method comprising the steps of:

a) receiving a light beam;

b) controlling -a galvanometer-driven, rotatable-mirror x-y scanner to selectively direct the light beam to one of a plurality of output paths; and

c) receiving the light beam at a selected one of an array of optical outputs aligned over a concave output surface, each of the optical outputs being aligned with one of the output paths so as to receive the light beam when directed by the x-y scanner.

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14. (new) The optical switch of claim 1, wherein the two-dimensional array of output fiber collimators is situated along a curved output surface.

15. (new) The method of claim 13 wherein the array of optical outputs is arranged over an output surface having a substantially spherical curvature of a radius valued between R and R+d, wherein R is an optical distance between the x-y scanner and the output surface, and d is a distance between a first scan axis and a second scan axis orthogonal to the first scan axis.

16. (new) The method of claim 13 wherein the array of optical outputs is arranged over an output surface defined substantially by an exact constant optical path condition accounting for a dependence of the optical path between the optical input and each of the optical output on an orientation of the x-y scanner.

17. (new) The method of claim 16 wherein the exact constant optical path condition is

$$z = \sqrt{\left[(\sqrt{(R+d)^2 - x^2} - d)^2 - y^2\right]}$$

wherein R is a real image radius, and d is a virtual image radius substantially equal to a distance between a first scan axis and a second scan axis orthogonal to the first scan axis.

18. (new) The method of claim 13, wherein:
the array of optical outputs comprises an array of output fiber collimators; and
the method further comprises individually aligning each of the fiber collimators with a corresponding output path during an assembly of the array of output fiber collimators.

19. (new) The method of claim 13, wherein the array of optical outputs is situated along a curved output surface.

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